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Customer Number

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Case No.: 56937US002

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

First Named Inventor: HAWKINS, STEPHEN J.  
Application No.: 10/014,625 Confirmation No.: 1418  
Filed: October 22, 2001 Group Art Unit: 1771  
Title: POLYOLEFIN PRESSURE SENSITIVE ADHESIVE TAPE WITH AN IMPROVED  
PRIMING LAYER

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**BRIEF ON APPEAL**

**CERTIFICATE OF MAILING OR TRANSMISSION [37 CFR § 1.8(a)]**

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October 11, 2010

Date

/Lynnda Kraft/

Signed by: Lynnda Kraft

Dear Sir:

A Brief on Appeal for the above-identified application is submitted with this letter. A  
Notice of Appeal was submitted and received on August 10, 2010.

**Fees**

- ☒ Any required fee will be made at the time of submission via EFS-Web. In the event fees are not or cannot be paid at the time of EFS-Web submission, please charge any fees under 37 CFR § 1.17 which may be required to Deposit Account No. 13-3723.
- ☐ Please charge any fees under 37 CFR §§ 1.16 and 1.17 which may be required to Deposit Account No. 13-3723.
- ☒ Please charge any additional fees associated with the prosecution of this application to Deposit Account No. 13-3723. This authorization includes the fee for any necessary extension of time under 37 CFR § 1.136(a). To the extent any such extension should become necessary, it is hereby requested.
- ☒ Please credit any overpayment to the same deposit account.

**REAL PARTY IN INTEREST**

The real party in interest is 3M Company (formerly known as Minnesota Mining and Manufacturing Company) of St. Paul, Minnesota and its affiliate 3M Innovative Properties Company of St. Paul, Minnesota.

**RELATED APPEALS AND INTERFERENCES**

Appellants are unaware of any related appeals or interferences.

**STATUS OF CLAIMS**

Claims 28, 31-41, 44-45 and 47 are pending. The final rejection of claim 45 is being appealed.

**STATUS OF AMENDMENTS**

No amendments have been filed after the final rejection.

**SUMMARY OF CLAIMED SUBJECT MATTER**

The rejected claims relate to a method of making a pressure sensitive adhesive (PSA) tape. Claim 45 is the only independent claim and recites application of a PSA atop a primer layer *prior to being crosslinked*. Claim 45 reads as follows:

45. A method of making a tape comprising:
- (a) providing a substrate;
  - (b) applying a primer to the substrate, the primer comprising:
    - a maleated rubber thermoplastic elastomer, wherein the maleated thermoplastic elastomer is a block copolymer comprising one or more polystyrene blocks, a rubber, or a styrene-ethylene-butene-styrene block copolymer,
    - a non-halogenated polyolefin, wherein the non-halogenated polyolefin comprises a C<sub>2</sub> – C<sub>30</sub>  $\alpha$ -olefin monomer,
    - a resin having a glass transition temperature between about 0°C and about 100°C, wherein the resin is a hydrocarbon resin, and

a first crosslinking agent activated by actinic radiation, wherein the first crosslinking agent is an aldehyde, a ketone, a quinone, a thioxanthone, or a vinyl halomethyl-sym-triazine;

(c) applying a pressure sensitive adhesive atop the primer prior to being crosslinked, wherein the pressure sensitive adhesive is based on natural rubbers, synthetic rubbers, styrene block copolymers, polyvinyl ethers, poly (meth)acrylates (including both acrylates and methacrylates), polyolefins, or silicones, and wherein the pressure sensitive adhesive further comprises a second crosslinking agent activated by actinic radiation, wherein the second crosslinking agent is an aldehyde, a ketone, a quinone, a thioxanthone, or a vinyl halomethyl-sym-triazine;

(d) applying actinic radiation to crosslink the primer and the pressure sensitive adhesive.

Support for claim 45 can be found in at least the following excerpts:

page 3, lines 7-14 and 27-30;

page 6, lines 3-5;

page 7, lines 6-7;

page 8, line 1; and

page 11, line 30 to page 12, line 1.

#### **GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

Claim 45 stands rejected under 35 USC § 103(a) as being unpatentable over Babu et al. (WO 93/11184) in view of Davison (U.S. 3,970,771), Bragole (U.S. 4,859,540), Yarusso et al. (U.S. 5,266,400), and as evidenced by Hansen (U.S. 4,141,876).

#### **ARGUMENTS**

Claim 45, part (c), recites the limitation “prior to being crosslinked”, and the Examiner interprets this to mean “the PSA prior to being crosslinked”. We respectfully disagree with this interpretation for at least the following reasons. Consider the preparation of Examples 1-6 (beginning on page 13). In Example 2, for example, both Primer 2 and PSA-2 comprise the same crosslinking agent XL-2. A coating for Example 2 was prepared as described on page 17,

line 22 to page 18, line 5: Primer 2 solution was coated on a tape backing followed only by drying, *with no curing step being carried out*. Then PSA-2 was coated atop the primer layer, and the 2-layer sample cured using Hg lamps. Clearly, curing is carried out so that XL-2 in each layer crosslinks the layers, i.e., each layer becomes crosslinked and crosslinking also occurs between the layers. Examples 1 and 3-6 are similar to Example 2.

We also disagree with the interpretation of step (c) in view of common sense to one of ordinary skill: it makes no sense that a PSA be applied atop anything *after* it is crosslinked because crosslinking sets the adhesive, providing adequate resistance to flow (see Yarusso, column 3, lines 11-14), and flow is required for coating.

*In view of Babu*

Regarding paragraph 5 on page 3 of the office action, it is said that Babu teaches a PSA tape and a method of making the PSA tape in which a radiation curable PSA is applied on a support, and that primers may be useful for improving adhesion. We do not believe that this paragraph is enough to establish a *prima facie* case of obvious because, at the very least, Babu does not disclose all of the limitations of claim 45, i.e., a crosslinkable PSA layer is coated on a crosslinkable primer layer before curing of either or both layers.

Regarding paragraph 6 on page 3 of the office action, it is said that Babu discloses a primer layer that reads on the primer recited in claim 45, and a PSA layer comprising alpha-olefins and crosslinking agents that can be crosslinked using actinic radiation. Whether or not this statement is true, it does not change the fact that Babu does not disclose all of the limitations of claim 45, i.e., a crosslinkable PSA layer is coated on a crosslinkable primer layer before curing of either or both layers.

Regarding paragraph 7 beginning on page 3 of the office action, it is said that Babu meets certain limitations of claim 45: the PSA comprises a non-halogenated polyolefin, step (c) wherein a PSA comprising a crosslinking agent is coated atop a primer, and step (d) crosslinking the PSA using actinic radiation. Whether or not this statement is true, it does not change the fact that Babu does not disclose all of the limitations of claim 45, i.e., a crosslinkable PSA layer is coated on a crosslinkable primer layer before curing of either or both layers.

*Babu in view of Davidson*

Regarding paragraphs 9-12 beginning on page 4 of the office action, it is said that Davison discloses a substrate that is coated with a mixed resin primer related to the primer of claim 45, and that Davison is related to improving the bonding with low energy substrates such as polyolefins and coatings using the primer of his invention. Whether or not this statement is true, it does not change the fact that Babu does not disclose all of the limitations of claim 45, i.e., a crosslinkable PSA layer is coated on a crosslinkable primer layer before curing of either or both layers, and that the disclosure of Davidson does not remedy this deficiency of Babu.

*Babu in view of Bragole*

Regarding paragraphs 13 and 14 beginning on page 5 of the office action, it is said that Bragole discloses a primed surface that is irradiated and an adhesive bonded to a primer. Bragole does make this statement, however, we have read Bragole in great detail and have found no teaching that an adhesive layer can be coated on a primer layer prior to the primer layer being crosslinked. Consider the excerpt in column 2, lines 3-7 in which Bragole states that irradiation of primers improves their *subsequent* adhesion to adhesives. Thus, Babu does not disclose all of the limitations of claim 45, i.e., a crosslinkable PSA layer is coated on a crosslinkable primer layer before curing of either or both layers, and Bragole does not remedy this deficiency of Babu.

*Babu in view of Yarusso*

Regarding paragraph 17 on page 6 of the office action, it is said that Yarusso discloses a PSA tape in which a primer to a backing is applied prior to an adhesive on the backing. Referring to column 3, lines 10-15 of Yarusso, it is said that coated tapes are exposed to electron beam radiation from the adhesive suitably to crosslink the adhesive. These disclosures by Yarusso have been interpreted to meet the limitation of claim 45, the requirement that an adhesive is applied before a crosslinkable primer layer is crosslinked. We respectfully disagree with this interpretation of Yarusso et al. Column 3, lines 10-15 states: “the coated tapes are exposed to electron beam radiation from the adhesive side to *suitably crosslink the elastomer in the adhesive ...*” with no mention of crosslinking a primer layer. We have

Regarding paragraph 18 on page 7 of the office action, it is said that Babu discloses the use of a primer and that Babu's PSAs are crosslinkable. Further, it is said that Yarusso describes a PSA tape in which one can coat the adhesive on a primer and then crosslink the adhesive. Considering the combination of these two sentences, it is not taught that the primer can be crosslinked.

Regarding paragraph 19 on page 7 of the office action, it is said that it would have been obvious to one of ordinary skill at the time the invention was made to apply a PSA of Babu atop a primer prior to being crosslinked, motivated by the desire to form a PSA tape of Babu since Babu desires formation of a PSA tape and Yarusso provides necessary details to practice the invention of Babu. We respectfully submit that evidence supporting this conclusion has not been provided.

In summary, it is respectfully submitted that the Examiner has not met the required initial burden for establishing a *prima facie* case of obviousness.

**CLAIMS APPENDIX**

1-27. Cancelled

28. (Previously presented) The method of claim 45 wherein the non-halogenated polyolefin comprises a polyhexene or a polyoctene.

29-30. Cancelled

31. (Previously presented) The method of claim 45 wherein the first crosslinking agent is 2,4-bis(trichloromethyl)-6-4'-methoxyphenyl-sym-triazine.

32. (Previously presented) The method of claim 45 wherein the primer further comprises an aliphatic, alicyclic, heterocyclic, cycloaliphatic, or aromatic epoxy having at least one oxirane ring.

33. (Previously presented) The method of claim 45 wherein the primer further comprises an epoxy resin comprising a cyclohexene oxide group, a glycidyl ether monomer, or a bisphenol A-epichlorohydrin.

34. (Previously presented) The method of claim 45 wherein the primer further comprises a multi-functional acrylate.

35. (Previously presented) The method of claim 45 wherein the primer further comprises fumed amorphous silica.

36. (Previously presented) The method of claim 45 wherein the primer further comprises a filler.

37. (Previously presented) The method of claim 45 wherein the pressure sensitive adhesive is a polyolefin based pressure sensitive adhesive.

38. (Previously presented) The method of claim 45 wherein the pressure sensitive adhesive is a poly- $\alpha$ -olefin comprising one or more monomer units derived from a  $C_5 - C_{30}$   $\alpha$ -olefin monomer.

39. (Previously presented) The method of claim 45 wherein the pressure sensitive adhesive is a poly- $\alpha$ -olefin comprising one or more monomer units derived from  $C_6 - C_{14}$   $\alpha$ ,  $\omega$ -dienes, conjugated dienes, trienes, terpenes, or alkenyl-norbornenes.

40. (Previously presented) The method of claim 45 wherein the pressure sensitive adhesive has a glass transition temperature in the range of about  $-70^\circ$  to about  $0^\circ$  C.

41. (Previously presented) The method of claim 45 wherein the pressure sensitive adhesive comprises a tackifying resin.

42-43. Cancelled

44. (Previously presented) The method of claim 45 wherein the substrate comprises a material selected from the group consisting of polyesters, polyolefins, papers, foils, polyacrylates, polyurethanes, perfluoropolymers, polycarbonates, ethylene vinyl acetates, vinyl, fabrics, foam, polymer coated papers, and retroreflective sheeting.

45. (Previously presented) A method of making a tape comprising:

(a) providing a substrate;

(b) applying a primer to the substrate, the primer comprising:

a maleated rubber thermoplastic elastomer, wherein the maleated thermoplastic elastomer is a block copolymer comprising one or more polystyrene blocks, a rubber, or a styrene-ethylene-butene-styrene block copolymer,



a non-halogenated polyolefin, wherein the non-halogenated polyolefin comprises a  $C_2 - C_{30}$   $\alpha$ -olefin monomer,

a resin having a glass transition temperature between about 0°C and about 100°C, wherein the resin is a hydrocarbon resin, and

a first crosslinking agent activated by actinic radiation, wherein the first crosslinking agent is an aldehyde, a ketone, a quinone, a thioxanthone, or a vinyl halomethyl-sym-triazine;

(c) applying a pressure sensitive adhesive atop the primer prior to being crosslinked, wherein the pressure sensitive adhesive is based on natural rubbers, synthetic rubbers, styrene block copolymers, polyvinyl ethers, poly (meth)acrylates (including both acrylates and methacrylates), polyolefins, or silicones, and wherein the pressure sensitive adhesive further comprises a second crosslinking agent activated by actinic radiation, wherein the second crosslinking agent is an aldehyde, a ketone, a quinone, a thioxanthone, or a vinyl halomethyl-sym-triazine;

(d) applying actinic radiation to crosslink the primer and the pressure sensitive adhesive.

46. Cancelled

47. (Previously presented) A tape prepared according to the method of claim 45.

**EVIDENCE APPENDIX**

None.

**RELATED PROCEEDINGS APPENDIX**

None.

**CONCLUSION**

For the foregoing reasons, it is respectfully submitted that the Examiner has erred in rejecting this application. Please reverse the Examiner on all counts.

Respectfully submitted,

October 11, 2010  
Date

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